

ENERGY MANAGEMENT (CSP Enhancements)

October 2005

Colorado Enhancement Activity Job Sheet E-4

Name:

Renewable Energy Fuel

Payment = \$25.00 per 100 gallons of **the bio-based portion of renewable fuels**.

Renewable Energy Fuel Uses – Renewable fuel is defined as “fuel grade ethanol and bio-diesel.” The USDA supports the conversion and use of biomass (plant-derived material) as an important energy resource for on-farm use to reduce dependence on petroleum-based fuels. At this time, biomass and its fuel derivatives represent the only renewable alternative for liquid transportation fuel. Using renewable energy fuels can eliminate the use of toxic fuel additives, such as MTBE (Methyl Tertiary Butyl Ether), reduce air and water pollution, and reduce greenhouse gas emissions.

- **Ethanol** – Ethanol is also known as ethyl alcohol or grain alcohol. Ethanol is used as an alternative fuel and as an octane-boosting additive to gasoline. The U.S. ethanol industry produced more than 2.81 billion gallons in 2003, up 32 percent from 2002's annual production of 2.13 billion gallons¹. Although this number is small compared to fossil fuel use for transportation, ethanol consumption continues to increase dramatically.
- **Bio-ethanol** technology turns low-value plant material, such as corn stalks, sawdust, or waste paper into fuel ethanol.
- **Bio-diesel** – Bio-diesel is a clean burning alternative fuel produced from oils and fats derived from a variety of renewable resources, including oils derived from canola seeds, corn seeds, sunflower seeds, flax seeds, and most commonly, soybeans. Raw bio-diesel contains no petroleum, but it is usually blended with petroleum diesel to create a bio-diesel blend. Bio-diesel fuel is made from oils or fats; both hydrocarbons. The hydrocarbons are filtered, then mixed with an alcohol (typically methanol) and a catalyst (sodium or potassium hydroxide). The major products from this reaction are bio-diesel fuel, which is an ester, and glycerol, which has commercial uses, such as in cosmetics, soap, and other products.

Bio-diesel is simple to use, biodegradable, nontoxic, and essentially free of sulfur and aromatics. It can be used in compression-ignition (diesel) engines with little or no modification. Farm machinery is largely diesel powered.

Documentation Required: Receipts for purchases of renewable fuels, such as ethanol and bio-diesel, must be maintained and provided as documentation for payment. Under the Conservation Security Program (CSP), payments will be made to qualifying producers for the **bio-based portion** of eligible blended fuels in 500-gallon increments. Attached tables are to be used to assist with record keeping and converting fuel blends into components that may be eligible for payment as CSP enhancements. An example is provided to assist you.

Renewable Fuel Records	
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Date	Fuel Type	Amount (gallons)	Renewable Component (gallons)	Estimated Payment (\$)
August 8, 2004	E85	6,000	5,100 (6,000 × .85)	\$1250 (See Table 2)

Notes:

1. Renewable fuel (bio-energy, or bio-fuel) is defined as *bio-diesel* and *fuel grade ethanol*.
2. Payments for renewable fuel under CSP are *limited to the bio-based portion* of eligible blended fuels in 500 gallon increments. For example, E-85 is 85% ethanol; therefore, for 589 gallons of ethanol, payment will be made only for the 500-gallon bio-based component.
3. The 2004 payment rate is \$125.00 per 500 gallons of the *renewable* fuel component.

[illegible]

I certify that I utilized the amount of bio-fuels described above.

Name: _____ Date: _____

Conversion Charts (Renewable Fuel Portion of Blended Fuels)

E85 (Ethanol 85) ¹	
Gallons of Blended Fuel	Equivalent Gallons of BioFuel
100	85
200	170
300	255
400	340
500	425
589	500
1,000	850
1,100	935
1,176	1,000
1,200	1,020
1,300	1,105
1,400	1,190
1,500	1,275
10,000	8,500
20,000	17,000
30,000	25,500
40,000	34,000
50,000	42,500
58,824	50,000
60,000	51,000
70,000	59,500
80,000	68,000
90,000	76,500
100,000	85,000

E10 (Ethanol 10) ²	
Gallons of Blended Fuel	Equivalent Gallons of BioFuel
100	10
500	50
1,000	100
1,500	150
3,000	300
5,000	500
10,000	1,000
15,000	1,500
20,000	2,000
25,000	2,500
30,000	3,000
40,000	4,000
50,000	5,000
60,000	6,000
75,000	7,500
100,000	10,000

B20 (Biodiesel) ³	
Gallons of Blended Fuel	Equivalent Gallons of BioFuel
100	20
500	100
1,000	200
2,500	500
3,000	600
5,000	1,000
10,000	2,000
15,000	3,000
20,000	4,000
25,000	5,000
30,000	6,000
40,000	8,000
50,000	10,000
60,000	12,000
75,000	15,000
100,000	20,000

B10 (Biodiesel) ⁴	
Gallons of Blended Fuel	Equivalent Gallons of BioFuel
100	10
500	50
1,000	100
1,500	150
3,000	300
5,000	500
10,000	1,000
15,000	1,500
20,000	2,000
25,000	2,500
30,000	3,000
40,000	4,000
50,000	5,000
60,000	6,000
75,000	7,500
100,000	10,000

- Notes:
1. 85% of fuel is ethanol
 2. 10% of fuel is ethanol
 3. 20% of fuel is soybean oil
 4. 10% of fuel is soybean oil

2005 Payment Chart (Renewable Fuel Portion of Blended Fuels)

(Gallons)	Payment (\$)
<500	0
500 – 999	125
1,000 – 1,499	250
1,500 – 1,999	375
2,000 – 2,499	500
2,500 – 2,999	625
3,000 – 3,499	750
3,500 – 3,999	875
4,000 – 4,499	1,000
4,500 – 4,999	1,125
5,000 – 5,499	1,250
5,500 – 5,999	1,375
6,000 – 6,499	1,500
6,500 – 6,999	1,625
7,000 – 7,499	1,750
7,500 – 7,999	1,875
8,000 – 8,499	2,000
8,500 – 8,999	2,125
9,000 – 9,499	2,250
9,500 – 9,999	2,375
10,000 – 10,499	2,500
10,500 – 10,999	2,625
11,000 – 10,499	2,750
11,500 – 11,999	2,875
12,000 – 12,499	3,000
12,500 – 12,999	3,125
13,000 – 13,499	3,250
13,500 – 13,999	3,375
14,000 – 14,499	3,500
14,500 – 14,999	3,625
15,000 – 15,499	3,750
15,500 – 15,999	3,875
16,000 – 16,499	4,000
16,500 – 16,999	4,125
17,000 – 17,499	4,250
17,500 – 17,999	4,375
18,000 – 18,499	4,500
18,500 – 18,999	4,625
19,000 – 19,499	4,750
19,500 – 19,999	4,875

(Gallons)	Payment (\$)
20,000 – 20,499	5,000
20,500 – 20,999	5,125
21,000 – 21,499	5,250
21,500 – 21,999	5,375
22,000 – 22,499	5,500
22,500 – 22,999	5,625
23,000 – 23,499	5,750
23,500 – 23,999	6,000
24,000 – 24,499	6,125
24,500 – 24,999	6,250
25,000 – 25,499	6,375
25,500 – 25,999	6,500
26,000 – 26,499	6,625
26,500 – 26,999	6,750
27,000 – 27,499	6,875
27,500 – 27,999	7,000
28,000 – 28,499	7,125
28,500 – 28,999	7,250
29,000 – 29,499	7,375
29,500 – 29,999	7,500
30,000 – 30,499	7,625
30,500 – 30,999	7,750
31,000 – 31,499	7,875
31,500 – 31,999	8,000
32,000 – 32,499	8,125
32,500 – 32,999	8,250
33,000 – 33,499	8,375
33,500 – 33,999	8,500
34,000 – 34,499	8,625
34,500 – 34,999	8,750
35,000 – 35,499	8,875
35,500 – 35,999	9,000
36,000 – 36,499	9,125
36,500 – 36,999	9,250
37,000 – 37,499	9,375
37,500 – 37,999	9,500
38,000 – 38,499	9,625
38,500 – 38,999	9,750
39,000 – 39,499	9,875
39,500 – 39,999	10,000

Note: Above 40,000 gallons of E85 used, allow \$125 for every 500 gallons of the renewable portion of E85 (or every 589 gallons of the E85 blend).